

# **Leadership Factors Influencing Successful Project Delivery: The Case of A South African Civil Engineering Company**

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## **Abstract**

The construction sector is essential to achieving society's long-term development goals; nevertheless, the shift to sustainability is a time-consuming process that poses a leadership challenge. Construction organizations require a clear vision, strategy, and direction toward the common goal of a sustainable future. The study will follow a quantitative approach and a questionnaire to solicit important information from the respondents. The backdrop of the study, problem statement, research questions, aims of the investigation, and importance of the study will be discussed. The literature on leadership covers several leadership styles and their possible implications on organizational performance and management. Studies have shown that leadership impacts worker performance in the construction industry, impacts project success as mediated by leadership styles and help navigate challenges in the construction industry. The study's aim was to look at the impact of leadership variables on project performance. Leadership traits of factors such as personal integrity, being optimistic, being proactive, having a general business perspective, being emotionally intelligent, being skillful, being a systems thinker, and having good time management skills are positively related to project success. It is important to note that the success of a project manager is not wholly a function of leadership but is influenced by other factors such as the composition of the team, project size, organisational structure, project manager's characteristics, top management support, and the specific circumstances of the project. Leadership on the other hand has been identified as a key component in the achievement of project success.

## **Keywords**

Project Management, leadership, management skills, organisational performance, quantitative.

## **1. Introduction**

The success of a project is based on the effectiveness of project management (Radujković and Sjekavica, 2017). Leadership is a key component in the success of projects (Cleveland and Cleveland, 2020; Raziq, Borini, Malik, Ahmad, and Shabaz, 2018; Tahir, 2019). Leadership traits of factors such as personal integrity, being optimistic, being proactive, having a general business perspective, being emotionally intelligent, being a skillful politician, being a systems thinker, and having good time management skills are positively related to project success (Cleveland and Cleveland, 2020; Larson and Gray, 2014). It is important to note that the success of a project manager is not wholly a function of leadership but is influenced by other factors such as the composition of the team, project size, organisational structure, project manager's characteristics, top management support, and the specific circumstances of the project (Larson and Gray, 2014). Simmons, McCall, and Cleg (2020) in their study on leadership in the construction industry identify its importance, furthermore, they note that both interpersonal and intrapersonal leadership competencies are important in the construction industry.

The construction industry is a billion-dollar industry globally, with the bulk of projects being publicly financed (Global M&A Construction Monitor, 2019). The construction sector has its reasonable share of challenges such as

poor-quality projects, poor governance, low productivity, lack of adequate collaboration, poor regulation, corruption, and cost and time overruns (Li, Greenwood, and Kassem, 2019). The construction industry stands as a unique sector characterised by its project-based nature, involvement of multiple stakeholders, and lengthy processes involved in the supply chain (Alade and Windapo, 2019). The construction industry also stands as a sector that contributes to sustainable societal development (Tabassi, Argyropoulou, Roufehaei, and Argyropoulou, 2016). This is because of its influence to the gross domestic product and the economy of South Africa. Due to the importance of the industry, projects must be completed within the agreed period, with budgeted costs not exceeded and within the defined scope (Serrador and Turner, 2015). As a result, project success may be defined as the achievement of the project's goals in terms of time, money, quality, and scope; satisfaction of customers and stakeholders; and accomplishment of the project firm's aims and goals (Raziq et al., 2018). Leadership has been identified as a key component in the achievement of project success (Cleveland and Cleveland, 2020; Tabassi et al., 2016). Studies have shown that leadership impacts worker performance in the construction industry (Oyetunji, Adebisi, and Olatunde, 2019), impacts project success as mediated by leadership styles (Raziq et al., 2018), and help navigate challenges in the construction industry (Nasaruddin et al., 2018).

There is still a need for more studies investigating how leadership impacts project success (Raziq et al., 2018). However, some studies point to leaders playing a crucial role in the success of projects. For example, research reveals that competent project leadership is required to meet necessary conditions for project success such as efficient and effective team development (Aga et al., 2016), as well as effective team interaction, cooperation, and cohesion. (Yang et al., 2011). In terms of empirical tests of the link between leadership and project success, there is currently a gap in the literature. (Aga et al., 2016, Yang et al., 2011). The few studies undertaken on the subject offer differing results with some studies suggesting a direct link between leadership styles such as transformational and transactional leadership, and project success (Aga et al., 2016; Liphadzi, Aigbavboa and Thwala, 2015). This study therefore sought to investigate the leadership factors leading to project success. Liphadzi et al., (2015) undertook a study bearing similarities to the proposed study however the studies will differ in that this study will focus on factors/traits such as those informed by Larson and Gray (2014) while the Liphadzi et al., (2015) study focused on leadership styles.

The South African construction industry is not exempt from challenges facing the global construction industry. According to Mukuka, Aigbavboa, and Thwala (2015), the construction industry in South Africa is plagued with challenges of projects schedule overruns. The following challenges in the South African construction industry are identified by Mashwama, Mushatu, and Aigbavboa (2018): inadequate planning, resources, delivery of material, plant, and equipment, shortage of skilled workers, lack of equipment, and lack of materials, project duration/period, and cost overruns. These challenges have the potential to lead to project failure and some of them can be mitigated by having capable leadership. The study focused on leadership traits. Traits refer to external behaviors that originate from within the leader's mind (Kirkpatrick and Locke, 1991). These are internal beliefs and processes that are important for effective leadership (Vaid, 2015). It is imperative to undertake a study that ascertains the impact of leadership on project success in the South African construction industry. To ascertain ways in which leaders can mitigate the effect of the challenges being faced in the construction industry and investigate key traits in leaders which lead to project success. Therefore, the research statement for this study is: To identify the leadership factors influencing successful project delivery at MGM Bluhay engineering company.

The study attempted to provide answers to the following research question:

- What are the leadership traits found in project managers in the South African construction industry?

## 1.1 Objectives

The study sought to achieve the following objective:

- To identify the leadership traits associated with project managers in the South African construction industry.

## 2. Literature Review

The material reviewed in this section has been derived from journals, research papers, and prior investigations on the study topic.

## **2.1. Definition Of Leadership**

Leadership is a process of influencing sequential activities undertaken by an individual or group to achieve project objectives in a given setting (Hersey & Blanchard, 1982: 94). To achieve project completion success, project leaders are required to have a broader knowledge to apply all the necessary tools and techniques of quality project management (Anderson, 1992P; PMBOK 2017).

## **2.3.Theories Of Leadership**

Many theories exist to explain how leadership works, what creates effective leaders, and how they might be efficient, and each theory's relevance varies depending on the context (Khan, Khan & Nawaz, 2016).

### **2.3.1. Directive leadership style**

Formal tasks such as planning, organizing, and controlling are prioritized by the leader. This technique is appropriate when the task is unclear to subordinates.

### **2.3.2. Supportive leadership style**

When group members are working on a task that is unsatisfying, difficult, or aggravating, the leader shows care for their well-being and boosts morale. The method is also appropriate when group members lack confidence in their ability to complete a certain job.

### **2.3.3. Participative leadership style**

When making a decision, the leader discusses with the members of the group. The technique is appropriate for boosting the morale of highly motivated personnel who undertake non-repetitive activities.

### **2.3.4. Achievement-oriented leadership style**

The leader promotes work progress and establishes high expectations for team members, who are subsequently expected to take on responsibilities. The approach is appropriate for members who work on unclear and non-repetitive activities. The preceding study of leadership theories reveals several ways in which leadership has changed over time, and it is clear that all of this work was expended in order to create a viable model of successful leadership. Regardless all the work done thus far in this discipline, what constitutes good leadership remains a moving target. In retrospect, there is no way to assess whether or not leadership is effective unless it has been tested and demonstrated to be beneficial in a certain context.

### **2.3.5. Trait theory**

According to Khan, Ahmed Khan, and Nawaz (2016), the trait hypothesis is a theory that states that leaders can be distinguished from non-leaders by their physical characteristics and that they are deserving of the position because of their distinguishing characteristics. Identifying individuals with the right attributes, according to Khan, Ahmed Khan, and Nawaz (2016), increases organisational effectiveness.

### **2.3.6. Process leadership theory**

Khan, Ahmed Khan & Nawaz (2016), described the process leadership theory as the theory that suggests that leadership depends on the interaction between the leader and a follower. Therefore, the success of the organisation depends on the availability of the leader to all of his/her employees and not discriminating against anyone.

### **2.3.7. Style and Behavioral theory**

This theory focuses on how the leaders should behave and assume like other leaders for them to succeed, therefore, they can copy the good behaviour of other leaders.

### **2.3.8. Transformational theory**

This leadership idea, according to Khan, Khan, and Nawaz (2016), recommends that workers should be involved in decision-making in their organization. The leader would then facilitate all of the talks, examine the employee's ideas, and decide on the best course of action.

### **2.3.9. Transactional theory**

This theory focuses on supervision, organisation, and group performance. It also suggests that people do things to avoid punishment and to achieve a reward (Khan, Ahmed Khan & Nawaz, 2016).

### **2.3.10. Laissez Faire leadership theory**

According to Khan, Khan, and Nawaz (2016), there are various ideas in the realm of leadership on how leadership works, what makes a good leader, and how to be effective. Leadership theories, according to Oino and Asghar (2018), emphasize the need of creating linkages between leaders and employees. According to this leadership theory, there are two primary degrees of influence evident in the interaction between the leader and the follower: the first stems from the realization that leaders cause a cost-benefit interaction in their constituency. According to Burns (1978), this impact is known as transactional leadership, which indicates that employees would comply with the leader's requests because they believe they will benefit from such actions. successful leader, recommending traits of leaders and what leaders can do to increase organizational performance.

## **2.3. Importance of Leadership**

Leadership literature describes a variety of leadership styles and their potential effects on organizational performance and management. According to Kalsoom, Khan, and Zubair (2018), leadership is the most significant component in an organization and the most vital skill for the company's executives. It has an instantaneous and indirect influence on the employee's performance. Leaders, according to Othman, Saad, Robani, and Abdullah (2014), play an important role in building a culture that encourages information interchange, representative upkeep, and association dependability. Several firms are currently dealing with difficulties such as high staff turnover, a lack of accountability, and employee work-related stress (Asrar-ul-haq and Kuchinke, 2016). As a result, the organization's goals are being met with little value and effectiveness. Malaysia is believed to have one of the highest rates of decreased productivity (Chu, 2017). Managerial leadership is a critical component in guaranteeing an organization's success. Leaders not only encourage individuals to improve their work performance, but they also motivate them to go above and beyond what is expected of them (Nawoselng'ollan & Roussel, 2017).

According to project management research, leadership styles are critical for project success. As a result, there is a lack of critical mass of study since no basic aspects in the link between project leadership and project performance have been explored and reviewed (Raziq, Borini, Malik, Ahmad, Shabaz, 2018).

## **2.4. Leadership Styles**

### **2.4.1. Transformational leadership Style**

Transformational leadership refers to leaders who focus on addressing their followers' higher-order intrinsic wants, culminating in followers connecting with their leader's desires (Bygballe and Ingemansson, 2014). As the name implies, transformational leadership entails a transition. The transformational system comprises of the leader, the followers, and the framework that the leader and followers are accountable for. In order to achieve the intended results, the leader is the major source of motivation and motivation for the followers (Robbins and Coulter, 2007). The followers are encouraged to work to their full capacity, and the leader pays heed to the followers' wishes and desires.

### **2.4.2. Transactional leadership style**

This leadership paradigm emphasizes that leaders are willing to abandon ineffective strategies and business units in order to capitalize on strengths (Drucker, 1967:11; Drucker, 1995:34). Leaders in this type take on a monitoring role, in which early warning indications of possible liabilities or concerns are detected and addressed before they have a detrimental impact on the institution's sustainability. According to Drucker (1967), a leader inside an organization should "...focus on the few important areas where great performance can yield spectacular outcomes" (p. 24). Drucker is the only theorist who advocates firing an employee who is underperforming and badly influencing the work environment. He argues that if a problematic employee's work and actions are not handled, they will disturb the work of other employees, completely endangering what has already been done (Drucker, 1967:89).

## **2.5. Leadership In Construction Industry**

The construction industry is critical to accomplishing society's long-term development goals; be that as it may, the transition to sustainability is a time-consuming process that provides a leadership challenge. Construction organisations require collaborative vision, strategy, and direction toward the shared objective of a sustainable future. Leadership is essential in the construction sector and is a critical success element in the push toward sustainability (Ofori and Toor, 2008). Construction organisations require collaborative vision, strategy, and direction toward the shared objective of a sustainable future (Opoku and Fortune, 2013). Leaders must include sustainability into their

organisational operations and include sustainable development into their entire company plan. Such executives must have both the skill and the understanding of sustainability to effectively drive their enterprises strategically toward sustainability. In recent years, there has been a growing emphasis on the role of leadership in boosting performance and innovation in the construction sector (Bonssink, 2007). Leaders play an important role in guiding construction firms toward more sustainable practices, and such leaders are thought to require specific leadership styles. The manner in which people interact with those they wish to lead creates their leadership style (Groetsch and Davis, 2006). Toor and Ofori (2008), on the other hand, believe that authenticity, rather than style, is important in leadership. As a result, the construction industry needs real leaders (moral and ethical leaders) who can seize the possibilities that sustainability presents to assure a better future for the construction industry. Leadership is often regarded as a critical aspect in obtaining commercial success in any firm. Despite significant studies on leadership, Giritli and Oraz (2004) concluded in their study of construction professionals' leadership styles in Turkey that leadership is one of the most misunderstood ideas in business. According to Jing and Avery (2008), despite widespread recognition of the necessity and value of leadership, the idea of leadership still lacks clarity and consensus in leadership literature. According to Odusami et al. (2003), who conducted a quantitative study of sixty (60) questionnaire surveys to investigate the association between project leadership and construction project performance, little research has been done on leadership in the construction sector.

## **2.6. The Construction Industry**

The construction industry is vital to the economy, and its activities are also critical to fulfilling national socioeconomic development goals such as supplying housing, infrastructure, and jobs (Anaman & Osei-Amponsah, 2007). A number of academics have investigated the function of building in the national economy. According to Khan (2008), the construction sector and construction activities are important sources of economic growth, development, and activity. Construction and engineering services are critical to the country's economic development and progress. The construction sector, which employs millions of unskilled, semi-skilled, and skilled workers, is also a major job creator. According to, the construction industry has one of the strongest multiplier impacts due to its extensive back and forth links with other sectors of the economy (1989). According to Ofori (1990), construction is significant in the national economy because of its close ties to the rest of the economy. The building sector is seen as an important and visible contributor to the growth process (Field & Ofori, 1988). According to the World Bank (1984), the importance of the construction sector stems from its close connections with other sectors of the economy. For its dismal performance, the global construction industry has been harshly criticised. A substantial body of written and anecdotal evidence suggests that the construction industry has one of the highest rates of corruption; construction projects taking longer than expected; overestimated budgets rarely adding value; exposing workers to dangerous and life-threatening hazards; demonstrating oscillating quality; and overall lack of performance as a producing unit (Edwards 2002; ILO 2000; Wyk and Chege 2004; Woudhuysen and Abley 2004). Unfortunately, the building industry is one of the most neglected since governments have failed to promote it as a source of economic growth. This is mirrored in the government's policies, which give the building industry little attention.

## **2.7. Global Look at Construction Sector**

The construction business, which encompasses real estate, infrastructure, and industrial structures, is the world's largest, accounting for 13% of global GDP (McKinsey & Company, 2020). The construction industry is often regarded as a major source of job creation globally, employing millions of unskilled, semi-skilled, and skilled employees. The sector is also thought to have an important role in both the official and informal sectors of a country's economy. According to current construction industry predictions, yearly worldwide construction expenditure would climb by 67%, from US\$7.2 trillion in 2011 to US\$12 trillion by 2020. Betts and colleagues (2011) The worldwide construction sector is expected to account for 13.2 percent of global GDP by 2020, according to forecasts. Betts and associates (2011). While these construction industry developments are admirable, they also raise new concerns about the global environment and the quality of life for future generations who may suffer as a result. According to Abidin and Pasquire (2007), the increasing pressure and susceptibility caused by environmental change has resulted in the creation and further study of more effective techniques to achieve sustainability in a variety of disciplines. Ochieng, Price, and Moore (2013) traced coordinated effort on sustainability back to the United Nations Brundtland Commission in 1987, noting that the notion of sustainable development may be defined using a variety of broad dimensions, including economic, social, and environmental considerations. According to Heravi et al. (2015), the construction industry, as a rising sector globally, contributes significantly to all three dimensions of sustainability in both developed and developing nations. Because of its close links to other economic sectors, development organizations, researchers, and politicians argue that the construction sector is critical to national economic growth and development (Hirschman 1958; World Bank 1984; Bon and Pietroforte 1990; ILO

2001; Ewing and Wang 2005; Khan 2008; Jackman, 2008, 2010). The overall economic condition and expectations about how it will evolve, according to Hillebrandt (2000), are the most important factors influencing building demand. In a thriving economy with a high and increasing GDP, a good balance of payments, and a decent level of employment and with hopes that this scenario will continue standards of living rise, consumer expenditures rise, and the government can invest to expand community services. In a downturn, the entire process is inverted, and less need for development is produced.

## **2.8. South African Look at Construction Sector**

The construction sector's involvement in the economy is critical owing to its direct and indirect effects on development. The construction industry is important for capital accumulation, job creation, and family income, and it can reduce economic inequality. The importance of the construction sector, according to Dlamini (2011), is tied not just to its size but also its involvement in economic growth. He contends that a sector of this size cannot but influence the economy. Dlamini goes on to say that economic growth is all about energizing the economy. The government supports the economy to encourage growth, which in turn helps to create jobs. Increased economic activity necessitates the development of adequate roads and other infrastructure. The construction sector, according to Lopes et al. (2011), is predicted to have a key role in economic growth while also delivering structures that promote productivity and quality of life. Construction is a labor-intensive business that employs a substantial share of the nation's workforce when it is working at full capacity. With these characteristics, can we use the building sector to build our way out of the recession? Most likely not. A macroeconomic examination of construction activity to see if it adds to economic growth indicates that construction activity follows economic growth. Turin (1978) stated that the value contributed to construction per capita and its proportion of the national product increases in tandem with economic growth. In terms of importance, the construction industry has certain characteristics that must be recognised to influence economic growth. The construction industry also has a significant impact on employment and household income. Total household income in South Africa was R1,57 trillion between September 2010 and August 2011, as per the Income and Expenditure Survey (2010/2011).

## **2.9. Leadership and Project Delivery at Construction Sites**

The construction sector has long been seen as dominating in guiding civilisations toward long-term growth (Tabassi, 2016). Construction leaders may influence or even convert their subordinates to improve the long-term performance of sustainable projects. The ability of the sector's leaders to lead is critical to the success of any construction project (Amirali, 2016). Some leaders favor a people-centered approach to project completion, whilst others prefer a production-centered approach. According to Alkahtani (2015), elements such as an employee's acceptance of the leader, job preparation, the leader's attributes, and the organization's conventions and ethics influence desired behavior. As a result, leaders must be able to understand and identify the organizational environment's dependent pieces before making a choice to aid precipitate organizational success in terms of project completion on time. Effective leadership is critical to the success of any organization or venture, including the construction industry (Liphadzi et al., 2015). According to Harvey and Ashworth (1993), differentiating aspects of the construction sector include project demands, project life cycles, contractual arrangements, and environmental issues - all of which required a certain type of directing leadership.

Maintaining and protecting organizational standards and compliance requires effective staff management and monitoring. Northouse (2010) and Naoum (2011), on the other hand, emphasize that differences in leadership styles have an impact on leader behavior. Diverse leadership behavior has a number of consequences that might have an immediate or indirect impact on employee attitudes and workplace behavior. The extensive use of subcontracting is another factor that may impact project leadership behavior. According to Naum (2001), the degree of subcontracting vs direct labor employment on project sites is related to a company's procurement policy and leadership style. In this line, Bresnen et al. (1986) describe how task-oriented types of leader behavior are more acceptable in situations where subcontracted labor makes up the bulk of the workforce. As a result, construction professionals might be justified in examining and weighing the utility of various leadership styles at various points of a project's life cycle.

## **2.10. Conceptual Framework**

The conceptual framework is a compilation of multiple results from the literature that have been classified and grouped into a framework that will guide this study in an attempt to provide a solution to the research issue. Figure 1 shows a representation of the conceptual framework.

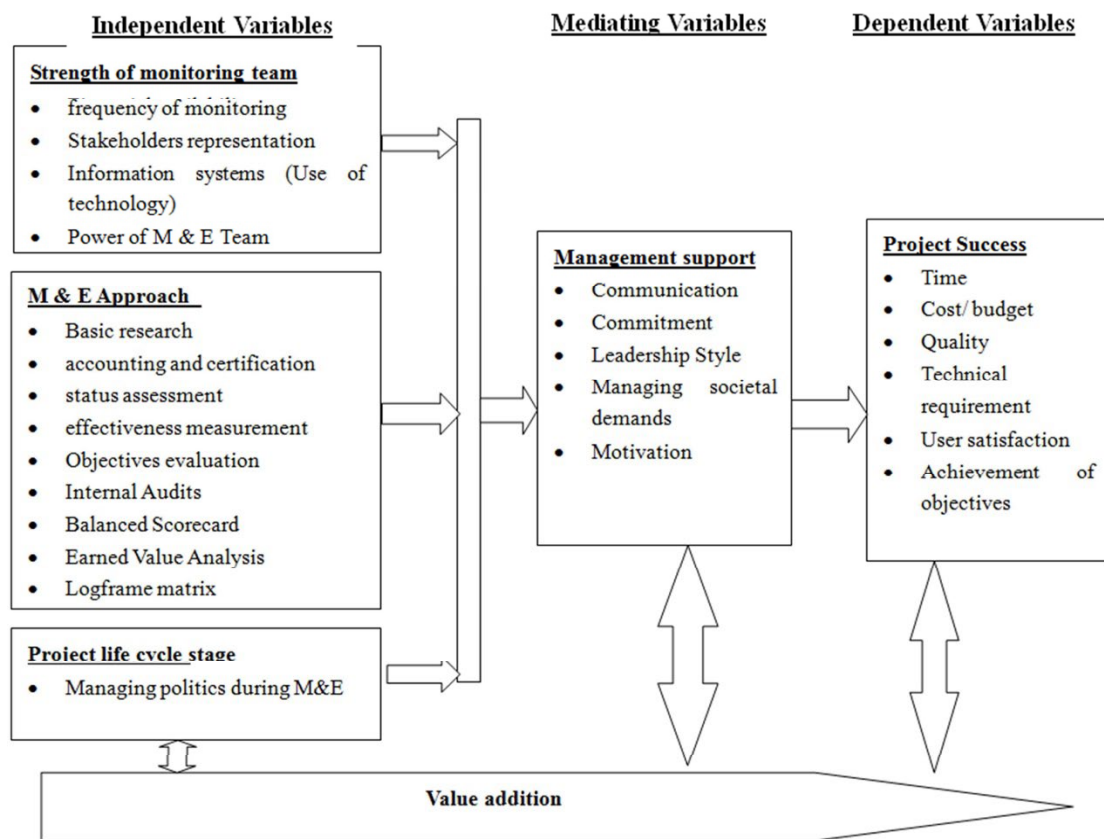


Figure 1. Conceptual Framework

Source: Charles G. Kamau and Humam Bin Mohamed: Efficacy of Monitoring and Evaluation Function in Achieving Project Success in Kenya: A Conceptual Framework

The framework demonstrates the linkages between project success and monitoring and evaluation as mediated by managerial support. It is assumed that the monitoring team's effective strength, the technique employed by the monitoring and evaluation team in reviewing projects, and the phases of project lifecycle would all have an impact on project success. Project success, on the other hand, is determined by the degree of management support given to project monitoring and evaluation activity. Monitoring and evaluation efforts, managerial assistance, and project success are all aimed at adding value to the organisation.

## 2.11. Key Factor Of The Study

### 2.11.1. African Problem

The 2020 edition of Deloitte's Africa Construction Trends Report features 385 projects for a total of US\$399 billion. The overall number of projects in this report decreased by 14.8 percent year on year, while the total value of projects decreased by 19.8 percent. East Africa, with a 30.6 percent share, had the most projects (118), followed by Southern Africa, with 26.5 percent (102 projects), and West Africa, with 19.7 percent (76 projects). Uganda, with 27 projects, and Kenya, with 26 projects, had the largest number of projects in the East African area. In terms of various initiatives, this retains them among the top five nations on the continent. Egypt and South Africa each recorded 40 projects, ranking them the continent's two countries with the most initiatives. Egypt reported a project value of \$93.7 billion USD (23.5 percent of the continental value).

Meanwhile, Nigeria had the second-largest project value of \$52.4 billion, followed by South Africa, which had a project value of \$50.4 billion, and Tanzania, which had a project value of \$33.5 billion. In 2020, nearly three out of every four projects (73.2 percent) were in the low-to-medium-high-value bracket of US\$50m-US\$500m (compared

to 64.8 percent in 2019). A total of 46 projects were priced between US\$501 million and US\$1 billion. Several projects were valued at more than US\$10 billion. Egypt's New Capital City is valued US\$58 billion, Mozambique's Offshore Area 1 Liquefied Natural Gas (LNG) project is worth US\$23 billion, and Nigeria's Centenary City is worth US\$18 billion. These three large projects have a combined value of US\$99 billion, or 24.9 percent of Africa's overall project value. East Africa saw the greatest decrease in the quantity and value of projects when compared to 2019. The number of projects in East Africa fell by 35%, while the overall project value fell by 47%, owing to the completion of many significant projects. Southern Africa's project count climbed by 35.3 percent, the highest growth on the continent.

### 3. Research Methodology

#### 3.1. Research design and methodology

Babbie and Mouton (2015: 75–77) distinguish between empirical-type questions (such as exploratory, descriptive, and evaluative questions) and non-empirical-type questions as a first step in determining the study strategy for a specific research topic (for example conceptual, theoretical, and normative questions). The researcher would need to acquire fresh data for empirical questions, but not for non-empirical questions. The sort of inquiry will offer the researcher an indication of what type of study will be undertaken, which will then define the method to the research, which approach, referred to as a "paradigm" by Babbie and Mouton (2015), is either qualitative or quantitative. Neville (2007:3) of the University of Bradford's School of Management distinguishes between these two methods (or paradigms) as follows:

- Quantitative: "gathering and analyzing numerical data" and "focuses on quantifying the phenomenon's magnitude, range, frequency, and so on"; and
- Qualitative: "evaluating a research subject's fewer tangible elements, such as values, attitudes, and perceptions" (Neville, 2007: 3).

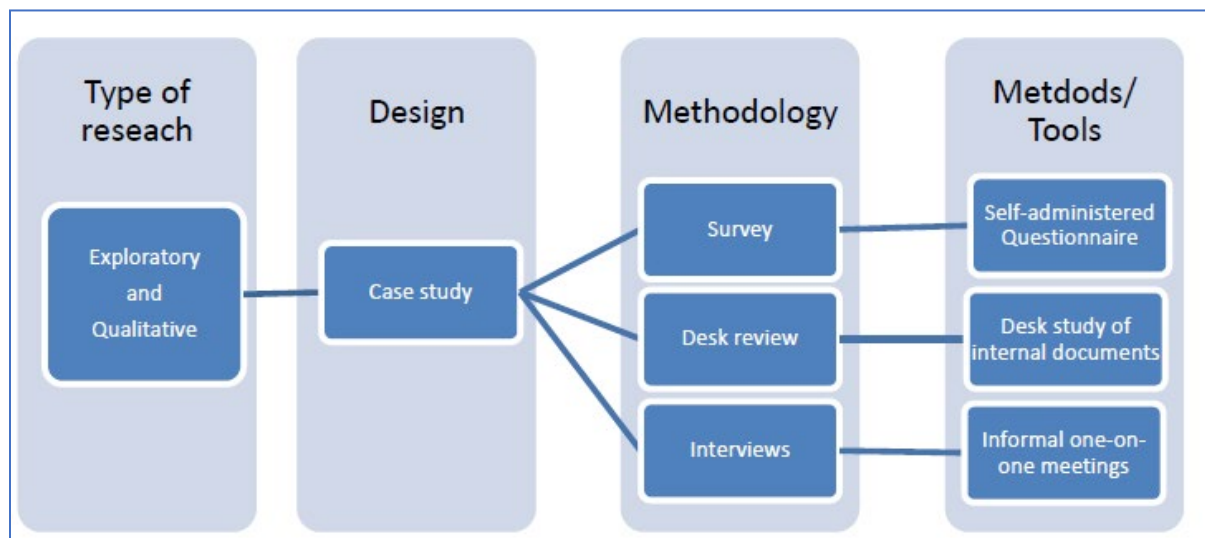


Figure 2. Design and technique of a study

Figure 2 depicts the whole study for the reader's convenience. Following that, there will be a more in-depth discussion of the design and process.

#### 3.1.1 Case study design

A research design, according to Babbie and Mouton (2001: xxvi), is "a strategy or organised framework of how you want [to conduct] the research process in order to address the research topic." Leedy (1985: 96) reiterates this, stating that a research design is "... the strategy, plan, and structure of executing a research project" and that the sort of design.(Leedy, 1985). The researcher has looked for answers to the leadership attributes identified in project managers in the South African construction sector in this study.



This is an empirical issue, and in order to answer it, the researcher had to investigate and acquire information from the case. As a result, the plan/strategy for doing the research was to build a case study, which is one of three designs under the quantitative research paradigm:

- **Ethnographic design** – “facts from cultural anthropology gathered from actual observation of behavior in a certain community” (Babbie & Mouton, 2015: 279).
- **Case study design** – “an in-depth examination of a single unit” [a person or an organization], considering several factors Case studies are essential because they consider multiple viewpoints and attempt to “understand the impacts of multi-level social systems on individuals' perspectives and behaviors” (Babbie & Mouton, 2015: 281); and
- **Life history design** – “the full-length book account of one person’s life in his or her own words” (Babbie & Mouton, 2015: 283)

In this study, several variables, including the setting, were investigated. Furthermore, it took into account information obtained through people's impressions and opinions, as well as information gathered through document analysis.

In conclusion, the features of this study made it a case study. The following paragraphs discusses how the various procedures (survey, desk review, and interviews) used in the case study design were implemented. The various methods/tools used in each technique were also be explored. However, the emphasis has been on the methods used to gather main data, as opposed to the procedures used to acquire secondary data.

### 3.2. Pilot Study

The questionnaire was pilot tested on ten persons who provided useful feedback.

### 3.3. Methodology

The initial topic of discussion has been the first approach and method adopted. **Survey**

The survey collected and analyzed primary data on leadership attributes seen in South African construction project managers. The goal is to elicit their perspectives, knowledge, and impressions.

A questionnaire was employed in this study as part of the survey technique.

#### 3.3.1. The Method: The Questionnaire

To submit responses to the questions, these managers were given a semi-structured questionnaire containing closed-ended questions. Respondents had three weeks to complete the questionnaire. E-mail reminders were sent out after weeks one and two, as well as at the end of the three weeks. A response rate of 50% is appropriate for analysis and reporting, according to Babbie and Mouton (2015: 261), whereas response rates of 60% and 70% are good and very good, respectively.

### 3.4. Population Sample

A sampling frame is a list of population members from which sample members are picked (Lorenz, Beer, Putz, & Heinitz, 2016). In this study, the sample framework consisted of 40 participants from the selected SMEs, representing all nationalities and both male and female employees. A random sample of employees from the intended demographic was recruited to participate in this study using the defined sample structure. In simple random sampling, each element in the population has an equal and independent chance of being picked as part of the sample. The sampling technique in this study was as follows: first, the researcher identified the population, then enumerated all of the members/employees who made up the study population, assigned numbers to each item in the population, then selected the sample using a random number generator.

### 3.5. Data Analysis

According to Durrheim (1999: 47), the goal of data analysis is to “transform the data into a solution to the original research question” or to “display the data in a cognitively digestible fashion.” Primary data has been obtained using a survey questionnaire. The data analysis technique began once the coded survey questionnaire responses were produced. These reports were put into Statistical Package for the Social Sciences version 23. (SPSS). It was used to enter data and produce averages, graphs, and charts. Cronbach's alpha was used to evaluate the instrument's internal consistency, and exploratory factor analysis will be utilised to test its validity. Items with low dependability were removed from the instrument and never utilised in any analysis. Descriptive statistics will be used to identify patterns across variables by calculating frequencies, proportions, means, standard deviations, skewness, and kurtosis.

### 3.6 Limitations And Ethical Considerations

According to Babbie and Mouton (2015:526), the flaws and failings of any research should always be disclosed to the reader. As a result, the following limitations of data gathering in this study are noted below:

- Delays caused by importing an Excel-created questionnaire into spreadsheets, understanding how to build the survey to maintain confidentiality and anonymity, and ensuring the measuring instrument's validity and reliability.
- Negotiation over upper management's involvement in three weeks, as well as the reality that space and time had to be factored in. As a result, not all questions could be asked, and extra levels of leadership were excluded from the sample. Only senior management was addressed, with little consideration given to junior or middle management.

The study's design and approach, particularly with regard to data collecting, necessitated that permission be acquired from research participants. The proposal to utilise their businesses as a case study for the research was authorised by the SMEs

The nature of the study was outlined in the letter that accompanied the email from the University. During the application for ethical approval, the Ethics Committee evaluated all of these issues and papers relating to the study. Following that, the application for ethical clearance was authorised with the condition that secrecy be maintained.

## 4. Data Collection

The results of a survey aimed to evaluate the influence of leadership factors on project success are presented. Following an explanation of the demographic profile of the participants, the outcomes of leadership variables that influence project performance are presented. Following that, the findings of the correlation research between leadership traits and project success has been presented.

### 4.1. Demographics Profile of the Participants

The subsections that follow provide a summary of the survey respondents' demographic profile by gender, age, and highest educational level.

#### 4.1.1. Gender

The majority of responders (76.7 percent) were males, with the remaining participants being females (23.3 percent).

#### 4.1.2. Age

Majority of the respondents were in the 31-40 years age group (46.7%) followed by the 18-30 years age group (25.0%).

#### 4.1.3. Highest Formal Qualification

Most of the participants indicated that they had a postgraduate qualification (56.7%) followed by the participants who indicated they had a post-matric degree or diploma degree (43.3%).

### 4.1.4. Results of leadership and project success factors

The outcomes of the factor analysis on leadership and project success factors are summarised in this section. Factor Analysis is used to identify a small number of factors that may be used to illustrate correlations between a large number of variables. To test if the data was adequate for factor analysis, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and the Bartlett's Test of Sphericity were utilised. To extract the components with eigenvalues larger than 1.0, the principal component analysis extraction technique and direct oblimin rotation were used. Each construct's internal consistency was measured using the Cronbach's alpha ( $\alpha$ ) coefficient.

### 4.1.5. Labour and material related factors

Table 1 displays the findings of the labor and material related factor analysis. The KMO was 0.68, and the related Bartlett's Test of Sphericity resulted in a statistically significant  $p$  0.001. The extracted component explained 53.6 percent of the overall variation. Cronbach's alpha for this scale was 0.71, and the mean of the scale for the respondents was 3.47 (s.d. = 0.68). Based on mean of the labour and material related factor, the participants were of the view that this factor was important to project success. According to Table 1, the quality control of materials had

the highest factor loading of 0.85 and then followed by escalation of material prices with the second highest factor loading of 0.71. The skillful workers requirement had the lowest factor loading for this factor.

Table 1. Labour and material related factors

Item Statements	Factor Loading
Quality control of materials	0.85
Escalation of material prices	0.71
Insufficient supply of materials	0.69
Skilful workers	0.67

#### 4.1.6. Communication related factors

Table 2 displays the findings of the communication-related factor analysis. The KMO was 0.77, and the related Bartlett's Test of Sphericity resulted in a statistically significant  $p \leq 0.001$ . The retrieved component explained 61.0 percent of the overall variation. The mean of the scale for the respondents was 3.29 (standard deviation = 0.91), and the Cronbach's alpha for this scale was 0.79. The participants believed that communication was critical to project success based on the mean of the communication-related component. The item on overall management actions had the highest factor loading of 0.81, whereas the item on control mechanism of the project activities had the lowest factor loading of 0.75.

Table 2. Communication related factors

Item Statements	Factor Loading
Overall management actions	0.81
Feedback capabilities between project participant	0.81
Communication system among project participants	0.76
Control mechanism of the project activities	0.75

#### 4.1.7. External environment related factors

Table 3 displays the findings of the external environment associated factor analysis. The KMO was 0.74, and the related Bartlett's Test of Sphericity resulted in a statistically significant  $p \leq 0.001$ . The retrieved factor explained 50.0 percent of the overall variance. The mean of the scale for the respondents was 3.18 (standard deviation = 0.78), and the Cronbach's alpha for this scale was 0.78. Based on mean of the external environment related factor, the participants were of the view that external environmental issues were important to project success. The physical environment item had the highest factor loading of 0.85 whereas the industrial relations item had the lowest factor loading of 0.51.

Table 3. External environment related factors

Item Statements	Factor Loading
Physical environment	0.85
Technology advancement	0.78
Political environment	0.76
Economic environment	0.67
Social environment	0.58
Industrial relations environment	0.51

#### 4.1.8. Consultants related factors

Table 4 displays the findings of the consultant-related factor analysis. The KMO was 0.66, and the related Bartlett's Test of Sphericity resulted in a statistically significant  $p \leq 0.001$ . The retrieved component explained 61.4 percent of the overall variation. The mean of the scale for the respondents was 3.03 (standard deviation = 0.82), and the Cronbach's alpha for this scale was 0.79. Based on mean of the consultants related factor, the participants were of the view that role of consultants were important to project success. The adequacy of design and specification item had the highest factor loading of 0.87 whereas the consultant's cooperation to solve problems item had the lowest factor loading of 0.63.

Table 4. Consultants related factors

Item Statements	Factor Loading
Adequacy of design and specification	0.87
Consultants involvement to monitor the project progress	0.84
Consultants commitment to ensure construction work is done according to specification	0.78
Consultants cooperation to solve problems	0.63

#### 4.1.9. Clients related factors

Table 5 displays the findings of the client-related factor analysis. The KMO was 0.84, and the related Bartlett's Test of Sphericity resulted in a statistically significant  $p \leq 0.001$ . The extracted component explained 54.3 percent of the total variation. Cronbach's alpha for this scale was 0.88, and the mean of the scale for the respondents was 3.40 (s.d. = 0.91). Based on the mean of the client-related component, the participants agreed that the involvement of clients was critical to project success. The item on delay of progress payment to contractors had a factor loading of 0.80, followed by the item on the client's ability to brief the project objectives with a factor loading of 0.78. The item on client's emphasis on low construction cost had the least factor loading of 0.64.

Table 5. Clients related factors

Item Statements	Factor Loading
The capacity of the client to brief the project goals	0.80
Organizational size of the customer	0.78
Capability of the client to make project decisions	0.77
Interference from the client during construction	0.76
Clients place a premium on speed of construction over quality.	0.74
Client experience, regardless of whether he is a smart or specialized client	0.71
Clients place a premium on cheap building costs.	0.67
The capacity of the client to brief the project goals	0.64

#### 4.1.10. Contractors related factors

Table 6 illustrates the findings of the contractor-related factor analysis. The KMO was 0.75, and the related Bartlett's Test of Sphericity resulted in a statistically significant  $p \leq 0.001$ . The extracted component explained 57.8 percent of the total variation. Cronbach's alpha for this scale was 0.73, and the mean of the scale for the responders was 3.55 (s.d. = 0.59). Based on mean of the contractors related factor, the participants were of the view that contractors were important to project success. The item of the team leader's experience of the contractors had the highest factor loading of 0.93 whereas the item on the working relationship of the team leader had the lowest factor loading of 0.65.

Table 6. Contractors related factors

Item Statements	Factor Loading
Experience as a project team leader	0.93
The dedication of project team leaders to accomplish cost, time, and quality goals	0.75
Project team leaders' motivating abilities	0.69
Relationships between project team leaders and others	0.65

#### 4.1.11. Planning effort related factors

Table 7 displays the findings of the contractor-related factor analysis. The KMO was 0.84, and the related Bartlett's Test of Sphericity resulted in a statistically significant  $p \leq 0.001$ . The extracted component explained 58.5 percent of the overall variation. The mean of the scale for the respondents was 3.23 (standard deviation = 0.96) and the Cronbach's alpha for this scale was 0.90. According to the mean of the planning effort related component, the participants believed that this aspect was critical to project success. The item on subcontractor work control had the greatest factor loading of 0.82, while the item on technical abilities had the lowest factor loading of 0.69.

Table 7. Planning effort related factors

Item Statements	Factor Loading
Work control of subcontractors	0.82
Early and ongoing engagement in the project by the project team leader	0.80
Creating an appropriate organizational structure	0.79
Adaptability of the project team leader to changes in the project plan	0.78
Putting in place a comprehensive safety and quality assurance program	0.75
Monitoring the Budget's Progress	0.74
The project team leader's ability to organize	0.73
The project team leader's technical ability	0.69

#### 4.1.12 Project success related factors

Table 8 displays the findings of the contractor-related factor analysis. The KMO was 0.83, and the related Bartlett's Test of Sphericity resulted in a statistically significant  $p \leq 0.001$ . The extracted component explained 52.3 percent of the overall variation. The mean of the scale for the respondents was 3.54 (standard deviation = 0.46), and the Cronbach's alpha for this scale was 0.76. The completion duration for the project item had the greatest factor loading of 0.91, while the item on project complexity had the lowest factor loading of 0.50.

Table 8. Project success related factors

Item Statements	Factor Loading
Completion period given for the contract	0.91
Type of project	0.80
Nature of project	0.78
Size of project	0.71
Complexity of project	0.50

#### 4.1.12. Relationship between Leadership Factors and Project Success.

Table 9 shows the relationships between leadership variables and project performance. To explain the strength of the association between the leadership variables and project performance, the Spearman rank correlation coefficient was utilized. Cohen (1998) proposes the following values as indicators of relationship strength:  $r = 0.10$  for small;  $r = 0.30$  for medium; and  $r = 0.50$  for large.

Leadership Factor	Project Success
Labour and material related factor	0.62*
Communication related factor	-0.40*
External environment related factor	0.64*
Consultants related factor	-0.45*
Clients related factor	0.43*

Table 9: Relationship between leadership factors and project success

Contractors related factor	0.38*
Planning effort related factor	0.19
**. Correlation is significant at the 0.01 level (2-tailed).	
*. Correlation is significant at the 0.05 level (2-tailed).	

According to the findings of the relationship study between various leadership variables and project success, there was a positive, strong, and statistically significant association between project success and external environment related factor ( $r = 0.64$ ;  $p < 0.05$ ), as well as labor and material related factor ( $r = 0.62$ ;  $p < 0.05$ ). Furthermore, the data demonstrated a positive medium and statistically significant association between project success and a client-related component ( $r = 0.43$ ;  $p < 0.05$ ) as well as a contractor-related factor ( $r = 0.38$ ;  $p < 0.05$ ). However, there was a minor but statistically significant positive link between project success and a measure related to planning effort ( $r = 0.19$ ). The data also revealed a negative medium and statistically significant association between project success and a communications-related component ( $r = -0.40$ ;  $p < 0.05$ ), as well as a consultant-related factor ( $r = -0.45$ ;  $p < 0.05$ ).

## 5. Results and Discussion

### 5.1 Summary of Main Findings

Objective 1: To identify the leadership traits associated with project managers in the South African construction industry.

Table 10. Ranking of leadership traits

Trait	Rank
External environment related factor	1
Labour and material related factor	2
Clients related factor	3
Contractors related factor	4
Communication related factor	5
Consultants related factor	6
Planning effort related factor	7

According to the findings, it can be observed that the external environment related factor was ranked first. In second place was the labour and material related factor followed by the clients related factor. The planning effort related factor was ranked last. The project's success related factor also identified in the study consisted of 5 items measured on a 5-point likert scale. The mean of the scale for the respondents was 3.45 (s.d. = 0.90) and Cronbach's alpha for this scale was 0.94. The mean of the scale for the respondents was 3.54 (s.d. = 0.46) and Cronbach's alpha for this scale was 0.76. The completion period for the project item had the highest factor loading onto the factor whereas the item on complexity of the project had the lowest factor loading onto the factor.

## 6. Conclusion

The study has gathered insights which are important to both academics and industry practitioners. The study has the potential of identifying the leadership factors and traits that managers might need to work on in order to improve construction project outcomes. The study has the potential to help construction companies identify potential leaders among workers by noticing those exhibiting leadership traits. The study fills an important knowledge gap by providing research on an area lacking research. The study can be of use to future scholars. The study has the potential of being used by policymakers and industry players in instituting training and employee development programmes. To improve the long-term performance of sustainable projects, construction leaders may be able to influence or even convert their subordinates. Any construction project's success hinges on the ability of the sector's leaders to lead (Amirali, 2016). Some executives prefer a people-focused approach to project completion, while others prefer a production-focused one. Elements such as an employee's acceptance of the leader, work preparedness, the leader's qualities, and the organization's customs and ethics, impact desired behavior, according to Alkahtani (2015). The construction sector is crucial to the economy, and its operations are also critical to meeting national socioeconomic development goals such as housing, infrastructure, and employment creation (Anaman & Osei-Amponsah, 2007)

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## **Biography**

**Lesetja Justice Boshomane** is currently a Senior Projects Manager in an Engineering Consulting Firm. The company is involved in providing Engineering services such as Bulk Water Infrastructure, Roads and Stormwater, Bulk Sewer infrastructure, Sanitation, Projects Supervision, Project Management across South Africa. He obtained a bachelor's degree Civil Engineering at the Tshwane University of Technology. He later specialized in Urban Engineering and further completed his Master's Degree in Business Administration (MBA) in 2021. Mr. Boshomane has been a senior projects manager of a reputable Engineering company for over 4 years. Mr. Boshomane is affiliated with the Engineering Council of South Africa (ECSA) as a Professional and equally a member of the Council serving under high impact committees which are Research Policies and Standards (RPS) together with the Continual Professional Development (CPD).

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